

a gas circulating mechanism that returns at least a portion of exhaust gas evacuated from said processing chamber to said gas supply mechanism,

wherein said gas supply mechanism includes,

a primary gas supply system that supplies primary gas supplied from a processing gas source into said processing chamber via said primary gas supply holes, and

a circulating gas supply system that supplies at least a portion of the exhaust gas into said processing chamber via said circulating gas supply holes with said primary gas supply system and said circulating gas supply system constituted as systems independent of each other, and

wherein the ratio of the number of said primary gas supply holes and the number of said circulating gas supply holes is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas, the number of said circulating gas supply holes being greater than the number of said primary gas supply holes, and

wherein the hole radius and the hole density of said primary gas supply holes are constant over an entire surface.

15. (Once Amended) A processing apparatus comprising:

a gas supply mechanism that supplies a processing gas into a processing chamber through primary gas supply holes;

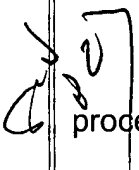
an evacuating mechanism that evacuates the processing gas from said processing chamber, and

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a gas circulating mechanism that returns at least a portion of exhaust gas evacuated from said processing chamber to said gas supply mechanism through circulating gas supply holes,

wherein said gas supply mechanism includes,

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ut  a primary gas supply system that supplies primary gas supplied from a processing gas source into said processing chamber, and

a circulating gas supply system that supplies at least a portion of the exhaust gas into said processing chamber with said primary gas supply system and said circulating gas supply system constituted as systems independent of each other, and

wherein the total hole area of the primary gas supply holes is less than the total hole area of the circulating gas supply holes.

C3 16. (New) A processing apparatus according to claim 14, wherein the hole radius and the hole density of said gas supply holes are constant over the entire surface.

17. (New) A processing apparatus according to claim 14, wherein the hole radius of said gas supply holes is constant over the entire surface,

wherein the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas, and

wherein the hole density of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

18. (New) A processing apparatus according to claim 14, wherein the hole density of said gas supply holes is constant over the entire surface,

wherein the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas, and

wherein the hole radius of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

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19. (New) A processing apparatus according to claim 14, wherein the conductance of said circulating gas supply system is set higher than the conductance at said gas supply mechanism.

20. (New) A processing apparatus according to claim 14, wherein a buffer space is provided at least at one of said gas circulating mechanism and said circulating gas supply system.

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21. (New) A processing apparatus according to claim 14, wherein a means for filtering said circulating gas is provided at least at one of said gas circulating mechanism and said circulating gas supply system.

22. (New) A processing apparatus according to claim 14, wherein the gas supply mechanism is configured to provide the primary gas at the outlet of said primary gas supply holes into said processing chamber at a velocity equal to or higher than 500 m / sec.

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23. (New) A processing apparatus according to claim 14, wherein the gas circulating mechanism is configured to provide said circulating gas at the outlet of said circulating gas supply holes into said processing chamber at a velocity equal to or higher than 500 m / sec.

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